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## PATENT SPECIFICATION

768,549



*Date of filing Complete Specification : Aug. 31, 1954.*

*Application Date : Sept. 21, 1953. No. 26005/53.*

*Complete Specification Published : Feb. 20, 1957.*

SPECIFICATION NO. 768,549

INVENTOR: - WILLIAM COOKSON

By a direction given under Section 17(1) of the Patents Act 1949 this application proceeded in the name of Cookson Sheet Metal Developments Limited, a British company, of 37/41 Gracechurch Street, London, E.C.1.

THE PATENT OFFICE,  
22nd January, 1957

DB 42093/1(5)/3648 100 1/57 R

10 material, e.g. fibreboard.

The object of this invention is to provide an improved sheet metal reinforcement for an end portion of such a drum container or the like.

15 According to this invention I provide a sheet metal band, preferably circular, having two walls adapted to fit over and embrace the end of a drum, of composition material, the outer wall of the band having an externally formed stepped edge or rim  
20 connected by a slanting wall to the inner wall, the band being intended to be swaged or spun below its slanting wall into the said material to provide an internal bead in the drum, to securely lock the said material to the metal band.

25 Also according to this invention I provide a drum made of composition material and provided at an end with a sheet metal band as aforesaid spun or swaged together with the drum into said internal bead.

30 In order that the invention may be clearly understood and readily carried into effect, reference will be made to the drawing accompanying the Provisional Specification wherein the invention is illustrated by way of example, as applied to a fibreboard drum, in which:—

35 Fig. 1 shows a part perspective view of a metal band;

40 Fig. 2 shows a part perspective view of the band in position on one end of the fibreboard drum;

Fig. 3 shows a part perspective view of the

[Price 3s. 0d.]

continued by a curved bend 4 to an inner wall 5. The metal band is slipped over to embrace tightly the end of a tube 6 made of fibreboard or similar composition material as shown in Fig. 2. The combined band and tube is then swaged, rolled, or spun together, in swaging tools in a suitable machine, an internal rim or ledge 7 (Fig. 3) being formed in the process on the free end of inner wall 5. At the same time rim or step 2 is progressively forced into the fibreboard to assist in forming an internal bead 8, as shown in Fig. 3. Rim 2 also serves to stiffen the metal band, which otherwise would distort circumferentially, and resist being shaped into the fibreboard. By providing rim 7, the fibreboard can be deformed without tearing or splitting under the pressure of swaging tools.

In Fig. 3 the swaging operation is shown partly completed, and in Fig. 4 is shown the completed form of the operation, with rim 2 fully rolled into bead 8. As a result of providing rim 2 on the outer wall of the metal band, the internal bead 8 has its upper wall 9 at right angles to drum body 6, and also has a sharply defined corner 10, unobtainable by normal swaging means. This construction also enables the outer metal wall to stretch sufficiently to form deeply into bead 8. The fibreboard is consequently tightly wedged or sandwiched between rim 7 and upper wall 9 of bead 8, as said rim and upper wall are sub-

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## PATENT SPECIFICATION

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Index at Acceptance :—Class 66, D1A4B2, D1B(1 : 2), D7N.

International Classification :—B65d.

### COMPLETE SPECIFICATION.

#### Improvements in or relating to Drums, Containers, and the like.

I, WILLIAM COOKSON, of 132 Portchester Road, Fareham, Hampshire, a British Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement :—

This invention relates to drums, containers, and the like made of composition material, e.g. fibreboard.

The object of this invention is to provide an improved sheet metal reinforcement for an end portion of such a drum container or the like.

According to this invention I provide a sheet metal band, preferably circular, having two walls adapted to fit over and embrace the end of a drum, of composition material, the outer wall of the band having an externally formed stepped edge or rim connected by a slanting wall to the inner wall, the band being intended to be swaged or spun below its slanting wall into the said material to provide an internal bead in the drum, to securely lock the said material to the metal band.

Also according to this invention I provide a drum made of composition material and provided at an end with a sheet metal band as aforesaid spun or swaged together with the drum into said internal bead.

In order that the invention may be clearly understood and readily carried into effect, reference will be made to the drawing accompanying the Provisional Specification wherein the invention is illustrated by way of example, as applied to a fibreboard drum, in which :—

Fig. 1 shows a part perspective view of a metal band;

Fig. 2 shows a part perspective view of the band in position on one end of the fibreboard drum;

Fig. 3 shows a part perspective view of the

combined band and drum after being partly swaged together;

Fig. 4 shows a part perspective view of the completed band and drum, and

Fig. 5 shows a part perspective view of a modified form of metal band securing a bottom in a fibreboard drum.

In Fig. 1, a circular sheet metal band 1 is provided with an externally formed step or rim 2, and a slanting wall 3. Wall 3 is continued by a curved bend 4 to an inner wall 5. The metal band is slipped over to embrace tightly the end of a tube 6 made of fibreboard or similar composition material as shown in Fig. 2. The combined band and tube is then swaged, rolled, or spun together, in swaging tools in a suitable machine, an internal rim or ledge 7 (Fig. 3) being formed in the process on the free end of inner wall 5. At the same time rim or step 2 is progressively forced into the fibreboard to assist in forming an internal bead 8, as shown in Fig. 3. Rim 2 also serves to stiffen the metal band, which otherwise would distort circumferentially, and resist being shaped into the fibreboard. By providing rim 7, the fibreboard can be deformed without tearing or splitting under the pressure of swaging tools.

In Fig. 3 the swaging operation is shown partly completed, and in Fig. 4 is shown the completed form of the operation, with rim 2 fully rolled into bead 8. As a result of providing rim 2 on the outer wall of the metal band, the internal bead 8 has its upper wall 9 at right angles to drum body 6, and also has a sharply defined corner 10, unobtainable by normal swaging means. This construction also enables the outer metal wall to stretch sufficiently to form deeply into bead 8. The fibreboard is consequently tightly wedged or sandwiched between rim 7 and upper wall 9 of bead 8, as said rim and upper wall are sub-

[Price 3s. 0d.]

stantially parallel. A suitable closure ring and lid can be fitted to the completed structure.

For securing a bottom in a fibreboard drum, metal band 11 shown in Fig. 5 has its inner and outer walls 12 and 13 respectively (shown dotted) of greater depth than the band shown in Figs. 1 to 4. The bottom disc 14 of fibreboard or suitable material is placed in the metal band, resting on rim 15. Walls 12 and 13 are then rolled over and inwardly to trap the bottom disc tightly, as shown. In this way the edges of the bottom disc are also protected by metal, and cannot rub and wear as is the case when fibreboards are in contact.

What I claim is:—

1. A sheet metal band, preferably circular, having two walls adapted to fit over and embrace the end of a drum, of composition material, the outer wall of the band having an externally formed stepped edge or rim connected by a slanting wall to the inner wall, the band being intended to be swaged or spun below its slanting wall into the said material to provide an internal bead in the drum, to securely lock the said material to the metal band.

2. A sheet metal band, preferably circular, having two walls adapted to fit over and embrace the end of a drum, of composition material, the outer wall of the band having an externally formed stepped edge or rim connected by a slanting wall to the inner wall, the band being intended to be swaged or spun below its slanting wall into the said material to provide an internal bead in the drum, the said inner wall being dimen-

sioned to form at the free edge thereof an internal rim or ledge seated on the commencing portion of said bead opposite said stepped edge or rim.

3. A sheet metal band constructed arranged and adapted to be spun or swaged together with the end of a drum on which it is to be assembled substantially as described herein with reference to the drawing accompanying the Provisional Specification.

4. A drum made of composition material and provided at an end with a sheet metal band according to Claim 1 spun or swaged together with the drum into said internal bead.

5. A drum made of composition material and provided at an end with a sheet metal band according to Claim 2 spun or swaged together with the drum into said internal bead and said internal rim or ledge.

6. A drum according to Claim 4 or 5, provided with a closure disc seated on said internal bead, a portion of the assembled drum and band extending opposite the internal bead beyond the plane of the disc being bent over the edge portion of the disc to secure the latter in position.

7. A drum provided with a metal band constructed and arranged substantially as described herein with reference to Fig. 4 or Fig. 5 of the drawing accompanying the Provisional Specification.

MEWBURN, ELLIS & CO.,  
70 & 72 Chancery Lane,  
London, W.C.2,  
Chartered Patent Agents.

#### PROVISIONAL SPECIFICATION.

#### Improvements in or relating to Drums, Containers, and the like.

I, WILLIAM COOKSON, of 132 Portchester Road, Fareham, Hampshire, a British Subject, do hereby declare this invention to be described in the following statement:—

This invention relates to a method of securing metal bands to the ends of drums and containers of composition material, e.g. fibreboard.

The invention has for an object to securely fix sheet metal bands or hoops to the ends of drums made of composition material such as fibreboard by providing metal bands to be swaged or spun into the fibreboard.

A further object of the invention it to provide means for swageably fixing a metal band to one end of a fibreboard drum for securing a bottom in said drum.

In accordance with the invention, I provide a sheet metal band, preferably circular, having two walls adapted to fit over and em-

brace the end of a drum, of composition material, the outer wall of the band having an externally formed stepped edge or rim, with a slanting wall connected to the inner wall and I swage or spin said metal band, with its slanting wall and rim, into the said material to provide an internal bead in the drum, to securely lock the said material to the metal band.

The invention also consists in the article thus formed.

In order that the invention may be clearly understood and readily carried into effect, reference will be made to the accompanying drawing wherein the invention is illustrated by way of example, as applied to a fibreboard drum, in which:—

Fig. 1 shows a part perspective view of a metal band;

Fig. 2 shows a part perspective view of the

band in position on one end of the fibreboard drum;

Fig. 3 shows a part perspective view of the combined band and drum after being partly swaged together;

Fig. 4 shows a part perspective view of the completed band and drum; and

Fig. 5 shows a part perspective view of a modified form of metal band securing a bottom in a fibreboard drum.

In Fig. 1, a circular sheet metal band 1 is provided with an externally formed step or rim 2, and a slanting wall 3. Wall 3 is continued by a curved bend 4 to an inner wall 5. The metal band is slipped over to embrace tightly the end of a tube 6 made of fibreboard or similar composition material, as shown in Fig. 2. The combined band and tube is then swaged, rolled, or spun together, in swaging tools in a suitable machine, an internal rim or ledge 7 (Fig. 3) being formed in the process on the free end of inner wall 5. At the same time rim or step 2 is progressively forced into the fibreboard to assist in forming an internal bead 8, as shown in Fig. 3. Rim 2 also serves to stiffen the metal band, which otherwise would distort circumferentially, and resist being shaped into the fibreboard. By providing rim 7, the fibreboard can be deformed without tearing or splitting under the pressure of swaging tools.

In Fig. 3 the swaging operation is shown partly completed, and in Fig. 4 is shown the completed form of the operation, with

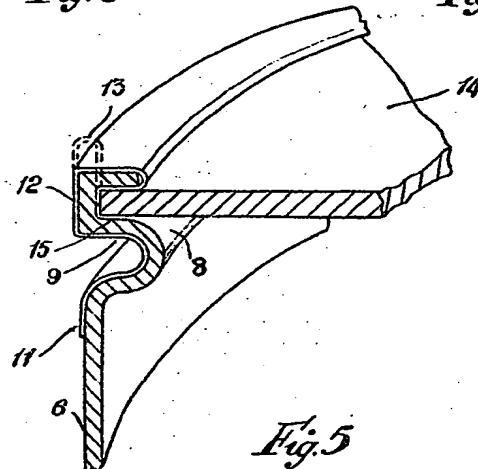
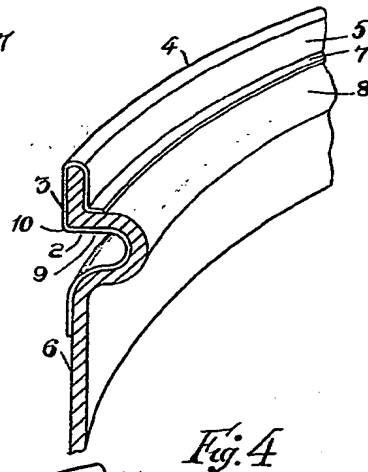
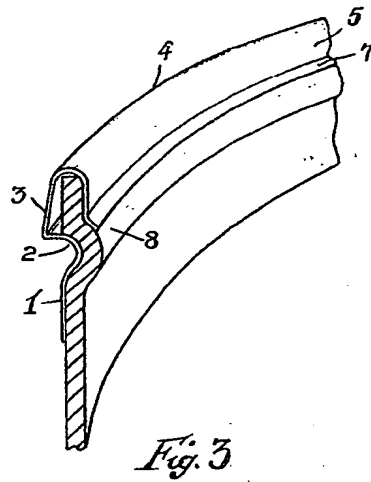
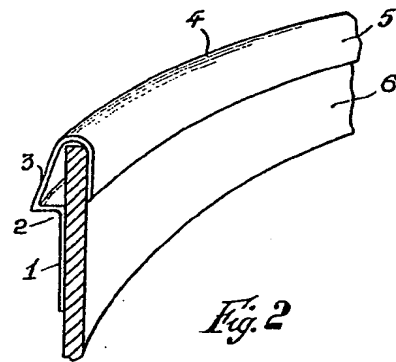
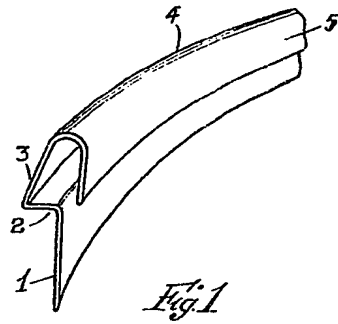
rim 2 fully rolled into bead 8. As a result of providing rim 2 on the outer wall of the metal band, the internal bead 8 has its upper wall 9 at right angles to drum body 6, and also has a sharply defined corner 10, unobtainable by normal swaging means. This construction also enables the outer metal wall to stretch sufficiently to form deeply into bead 8. The fibreboard is consequently tightly wedged or sandwiched between rim 7 and upper wall 9 of bead 8, as said rim and upper wall are substantially parallel. A suitable closure ring and lid can be fitted to the completed structure.

For securing a bottom in a fibreboard drum, metal band 11 shown in Fig. 5 has its inner and outer walls 12 and 13 respectively (shown dotted) of greater depth than the band shown in Figs. 1 to 4. The bottom disc 14 of fibreboard or suitable material is placed in the metal band, resting on rim 15. Walls 12 and 13 are then rolled over and inwardly to trap the bottom disc tightly, as shown. In this way the edges of the bottom disc are also protected by metal, and cannot rub and wear as is the case when fibreboards are in contact.

It will be apparent that the details may be varied without parting from the ambit of the invention.

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70 & 72 Chancery Lane,  
London, W.C.2,  
Chartered Patent Agents.

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